

REMARKS

Please charge the fee required for any necessary extension of time to deposit account No 07-2100.

Claims 18-22, 24-31, 33-36, 38-41 and 48 are presently in the application. Claims 1-17, 23, 32, 37 and 42-47 have been canceled.

The examiner's indication of allowable subject matter in claims 21, 24, 27, 31, 33, 35, 36, 38, 39 and 42-44 is greatly appreciated.

Claim 18 has been amended to include the language of claim 23, to recite that the end of the nozzle needle oriented toward the nozzle needle seat (4) is a cone (as previously recited in claim 21), and to delete the language concerning the width of the annular groove (8) (which the examiner has determined is a matter of routine design).

Claim 30 has been rewritten in independent form and amended to recite that the end of the nozzle needle oriented toward the nozzle needle seat (4) is a cone and that the nozzle needle seat (4) is the shape of a truncated cone having a base surface.

The claims have also been amended as suggested by the examiner on page 2, para. 2 of the last Office action.

Reconsideration of the rejection of claims 18-20, 22, 23, 25, 26, 28-30, 34, 40 and 41 under 35 U.S.C. 103(a) as unpatentable over Nozaki (US 5,588,412) is respectfully requested.

Independent claim 18 is directed to an injection nozzle for internal combustion engines, which has at least one injection orifice (3), a nozzle needle seat (4), and a nozzle needle (5), the improvement wherein the end of the nozzle needle (5) oriented toward the nozzle needle seat (4)

is a cone and has an annular groove (8), and wherein a blind hole (2) adjoins the nozzle needle seat (4) and has the at least one injection orifice (3). See Fig. 1.

Independent claim 30 is directed to an injection nozzle for internal combustion engines, which has at least one injection orifice (3), a nozzle needle seat (4), and a nozzle needle (5), the improvement wherein the end of the nozzle needle (5) oriented toward the nozzle needle seat (4) is a cone and has an annular groove (8), and wherein a blind hole (2) adjoins the nozzle needle seat (4) and has the at least one injection orifice (3). See Fig. 3.

Nozaki (US 5,588,412) discloses an injection valve having nozzle needle body 3 with a conical valve seat 303 and a bottomed hole 304. Nozaki's injection valve includes a small-diameter shaft portion 43 having a conical seat face 44 to be attached to and detached from the valve seat 303 and an inner, small-diameter shaft portion 72 which seats within the bottomed hole 304.

Nozaki does not teach or suggest a nozzle needle, wherein the end of the nozzle needle oriented toward the nozzle needle seat is a cone and has an annular groove and wherein a blind hole adjoins the nozzle needle seat and has at least one injection orifice as required by claim 18. Nozaki also does not teach or suggest a nozzle needle seat and a nozzle needle, wherein the end of the nozzle needle oriented toward the nozzle needle seat is a cone and has an annular groove, wherein the nozzle needle seat is the shape of a truncated cone having a base surface and wherein the nozzle needle seat has at least one injection orifice.

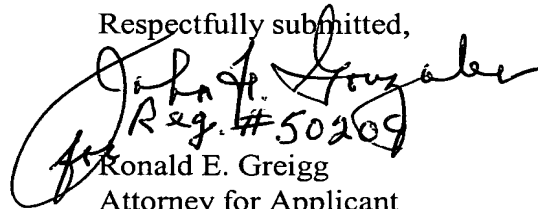
To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA

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1974). Nozaki does not teach or suggest a nozzle needle of the type recited in either claim 18 or 30 in which the end of the nozzle needle oriented toward the nozzle needle seat is a cone and has an annular groove and wherein a blind hole adjoins the nozzle needle seat and has at least one injection orifice or a nozzle needle seat and a nozzle needle, wherein the end of the nozzle needle oriented toward the nozzle needle seat is a cone and has an annular groove, wherein the nozzle needle seat is the shape of a truncated cone having a base surface and wherein the nozzle needle seat has at least one injection orifice. Accordingly, neither claim 18 nor claim 30 is rendered obvious by the teachings of Nozaki.

Entry of the amendment and allowance of the claims are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ronald E. Greigg", is written over the typed name and registration information.

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